

CLAIMS

What is claimed is:

1. A system comprising:
a chamber configured to house a substrate for processing;
an energy source coupled to the chamber;
a system controller configured to control the introduction of at least one metal precursor gas to a focused ion beam and to control the introduction of the focused ion beam from the energy source; and
a memory coupled to the controller comprising a computer-readable medium having a computer-readable program embodied therein for directing operation of the system, the computer-readable program comprising:
instructions for controlling the energy source and for introducing the metal precursor gas into a focused ion beam which is introduced into the chamber over the substrate in which the metal from the focused ion beam forms at least one metal layer over the substrate; and
controlling a coherent electromagnetic radiation source to heat the at least one layer.
2. The system of claim 1, wherein the metal precursor gas is one of cobalt, metal carbonyl, molybdenum, platinum, and tungsten.
3. The system of claim 2, wherein introducing one of cobalt, metal carbonyl, molybdenum, platinum, and tungsten into the focused ion beam in a controlled ratio at a chamber pressure in the range of 10^{-5} to 10^{-7} torr.
4. The system of claim 1, wherein the focused ion beam heats a discrete area on the layer.
5. The system of claim 1, further comprising a lens coupled to the coherent electromagnetic radiation source to focus the coherent electromagnetic radiation source to a spot size on the at least one layer.

6. The system of claim 5, wherein said lens comprises a 5x lens of numerical aperture approximately 0.15 to focus a spot size of the coherent electromagnetic radiation source in the range of 8 microns to 10 microns in diameter.
7. The system of claim 5, wherein the at least one metal layer formed over the substrate comprises tungsten and the spot size is approximately 10 micrometers in width.
8. The system of claim 1, wherein the at least one metal layer over the substrate comprises at least one metal layer line having a thickness in the range of 0.1 microns to 1 micron.
9. The system of claim 1, wherein the chamber further comprises one of a low level vacuum, a non-reacting gas, and a reducing atmosphere.
10. The system of claim 9, wherein one of a carbon, gallium, and an oxygen is removed from the layer.
11. The system of claim 1, wherein the instructions for controlling the introduction of at least two metals comprises instructions involving introducing the cobalt, metal carbonyl, molybdenum, platinum, and tungsten in a controllable ratio.
12. The system of claim 1, further comprising a plurality of inlets to introduce a plurality of metal precursor gasses, wherein each of the plurality of metal precursor gasses is introduced via a separate inlet and in a controllable ratio.